

Chapter 3

Civil Works Project Planning and Design Process

3-1. General

The civil works planning and design process for a new dam is continuous, although the level of intensity and technical detail varies with the progression through the different phases of project development and implementation. The phases of the process are reconnaissance, feasibility, preconstruction engineering and design (PED), construction and finally the operation, maintenance, repair, replacement and rehabilitation (OMRR&R). A brief description is given below. For more detailed guidance regarding each phase, refer to ER 1110-2-1150.

3-2. Problem Perception and Study Authorization

The typical civil works project has its beginning when a problem is perceived or experienced which is beyond the capability of local interests to alleviate and therefore Federal assistance is requested. At the request of one of its members, Congress may authorize a study of the problem (ER 1105-2-100).

3-3. Reconnaissance Phase

A reconnaissance study is conducted to determine whether or not the problem has a solution acceptable to local interests for which there is a Federal interest and if so whether planning should proceed to the feasibility phase. The reconnaissance study is Federally funded and is limited to 12 months with extension to 18 months under unusual circumstances. During the reconnaissance phase, engineering assessments of alternatives are made to determine if they will function safely, reliably, efficiently and economically. Each alternative should be evaluated to determine if it is practical to construct, operate, and maintain. Several sites should be evaluated and preliminary designs prepared for each site for cost estimating purposes. These preliminary designs should include the dam, the foundation for the dam and appurtenant structures and the reservoir rim. The reconnaissance phase consists

of preparing and reviewing proposed project plans, structuring the project features into the code of accounts, developing preliminary cost estimates, holding a Reconnaissance Review Conference (RRC) with a Technical Review Conference (TRC), if appropriate, and developing the engineering effort and budget required for the feasibility phase and the Initial Project Management Plan (IPMP). The reconnaissance phase ends with certification of the reconnaissance report.

3-4. Feasibility Phase

A feasibility study is conducted to investigate and recommend a solution to the problem based on technical evaluation of alternatives and includes a baseline cost estimate and a design and construction schedule which are the basis for congressional authorization. The feasibility study is cost-shared with the local sponsor and should be completed in 3 to 4 years. All of the project OMRR&R and dam safety requirements should be identified and discussed with the sponsor and State during the feasibility phase. A turnover plan (discussed in paragraph 3-1h), for non-Federal operated dams, that establishes a definite turnover point of the dam to the sponsor should be documented in the IPMP and in the Feasibility Report (ER 1105-2-100).

3-5. Preconstruction Engineering and Design Phase

The PED phase is conducted to verify, complete and document detailed design studies of a project as authorized or proposed with the Feasibility Report. Design costs for the PED phase are shared in the same percentage as construction. During the PED phase, which generally requires a period of about 2 years, activities necessary to ready the project for construction including preparation of plans and specifications (P&S) for the first construction contract are completed. It may be determined during the PED phase that a General Design Memorandum (GDM) or General Reevaluation Report (GRR) is necessary because the project has changed substantially since administration review of the feasibility report (with engineering appendix) or authorization, the project was authorized without a feasibility report, there is a need to readdress project formulation, or there is a need to reassess project plans due to changes in administration policy (ER 1110-2-1150 will be followed).

3-6. Construction Phase

This phase not only involved the actual construction of the project features, but includes design and preparation of P&S for subsequent construction contracts, review of selected construction contracts, site visits, support for claims and modifications, development of operation and maintenance (O&M) manuals, and preparation and maintenance of as-built drawings (ER 1110-2-1150).

3-7. Operation and Maintenance Phase

The project is operated, inspected, maintained, repaired, and rehabilitated by either the non-Federal sponsor or the Federal government, depending upon the project purposes and the terms of the Project Cooperation Agreement (PCA). For PCA projects and new dams turned over to others, the Corps needs to explain up front the O&M responsibilities, formal inspection requirements, and responsibilities to implement dam safety practices.

3-8. Turnover of Completed Dam Projects to Local Sponsors

As a result of the Water Resources Development Act of 1986, a number of flood control and multipurpose

dams have been authorized subject to the provision that the local sponsor is responsible for OMRR&R (see ER 1165-2-131).¹ All project OMRR&R and dam safety requirements must be identified and discussed with the local sponsor during the feasibility phase and documented in the IPMP and Feasibility Report. The local sponsor must comply with all State and Federal dam safety requirements. As the project design develops and the O&M manual is prepared, the sponsor should provide input and review the draft document. The sponsor should be made aware of its responsibilities for providing an adequate operational and technical staff or appropriate engineering services contract for project security, performance data, and timely remedial measures as required. The turnover of the project to the sponsor will occur immediately after the first periodic inspection. The sponsor must be made aware that after transfer of the project, the Corps is in a supporting role with respect to dam safety and will only participate in inspections and review performance data.

¹ Guidance on policy and procedures for the turnover of completed dam projects to local sponsors is given in Policy Guidance Letter No. 39, "Responsibilities of the Corps of Engineers and Local Sponsor to Ensure Safe Operation, Maintenance, Repair, Replacement and Rehabilitation for Flood Control and Multipurpose Dams Constructed Under the Provisions of PL 99-662," dated 13 November 1992.